

Work Order ID 151497

Thursday, October 20, 2016 7:37:14 AM

Page 1

Item ID: 647.1501

Revision ID:

Item Name: Lower Deflector Assembly

Start Date: 9/22/2016 Start Qty: 3.00

Required Date: 9/27/2016 Req'd Qty: 3.00

Reference:

Approvals: Process Plan:

QC:

Date: OCT 20 2016

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Run Start

Stop

NR1

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

647.1500

C

110 Pick Kit

0.00

110

Packaging

Memo

0.00

Packaging

3

OCT 25 2016

DAS
6
9-89

120

0.00

120

Small Fab

Memo

0.30

Small Fab

Assemble as per dwg and apply loctite 598 on all faying surfaces per note 5.

A/R RTV LOCTITE 598: 135479
exp. date: 04/18

3x

16/11/01
DAS
38
9-89

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.01

Quality Control

3

NOV 01 2016
DAS
38
9-89647.1501
B151497
REV. C

Accept

151497***N900040100***

Setup Start

NS1

Stop

NS2

Cust Item ID:

Customer:

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : ☐									

Work Order ID 151497

Thursday, October 20, 2016 7:37:14 AM

151497

Page 2

Item ID: 647.1501

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Lower Deflector Assembly

Start Date: 9/22/2016 Start Qty: 3.00

3

Cust Item ID:

Required Date: 9/27/2016 Req'd Qty: 3.00

3

Customer:

Reference:

Run Start

NR1

Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop

NR2

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

Identify as per dwg & Stock Location: *CCK002*

0.00

140

Packaging

Memo

0.01

3

NOV 01 2016

DAS
6
9-89

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

150

QC21- Final Inspection - Work Order Release

0.00

150

QC

Memo

0.05

DAS
21
9-89

NOV 01 2016

Quality Control

VS 16/11/1

[Signature]

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____																																																									
Description Work Order Deviation				Disposition																																																													
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

ENGINEERING CHANGE NOTICE NO.

05344

SHEET 1 OF 2

DWG NO. 647.1500

REV: B

PREPARED BY

J. GARDINER

DATE: 03/15/16

EFFECT ON DWG
☒ INC. ☐ UNINC.

DWG TITLE: DEFLECTORS

APPROVED BY:

ENGR

MFG

QC

EFF:

CURRENT ORDER

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: REVISED NOTES AND DIMENSIONS

ECR:

N/A

ACTION LIST:

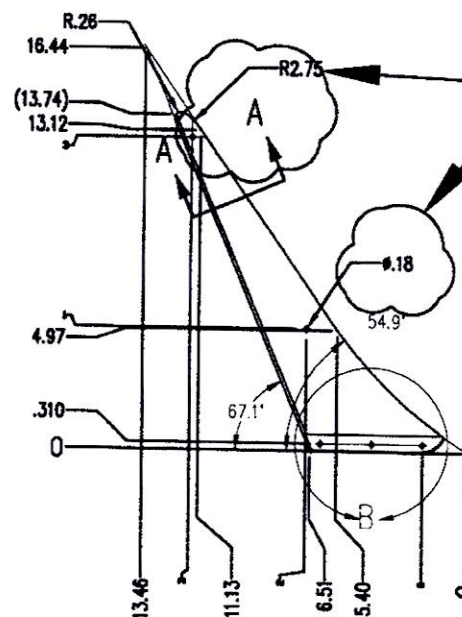
1.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 151497MLJ
16-09-28

WAS

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH PER MPP-172 SECTION 3.3 & 4.3, 1-2 MIL MAX
- 3 BREAK AND BREAK ALL SHARP EDGES
- 4 IDENTIFY DAW MPP-129
- 5 APPLY F.A. 5 AS REQUIRED TO ALL FAYING SURFACES
IF 1/A, 2 & 3 UPON ASST



WAS

SHEET 1, ZONE A7 WAS:

SHEET 1, ZONE C3 WAS:

DOCUMENTS EFFECTED:

☐ PATTERN

☐ MDL

☐ INSTALL INSTRU

☐ ICA

☐ BOM

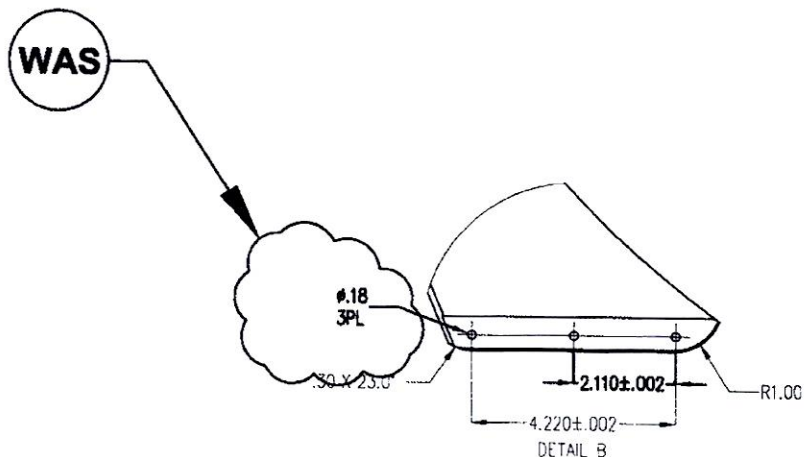
CHANGE CATEGORY

☐ MAJOR ☒ MINOR

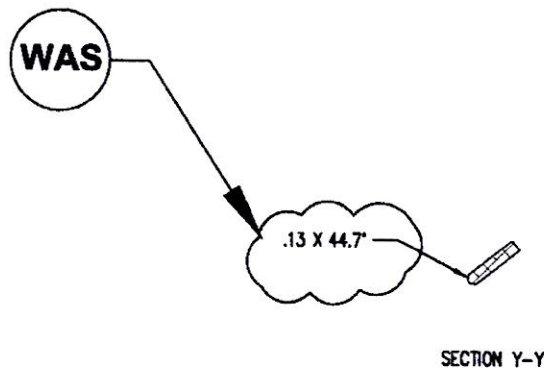
DER REVIEW REQUIRED

☐ YES

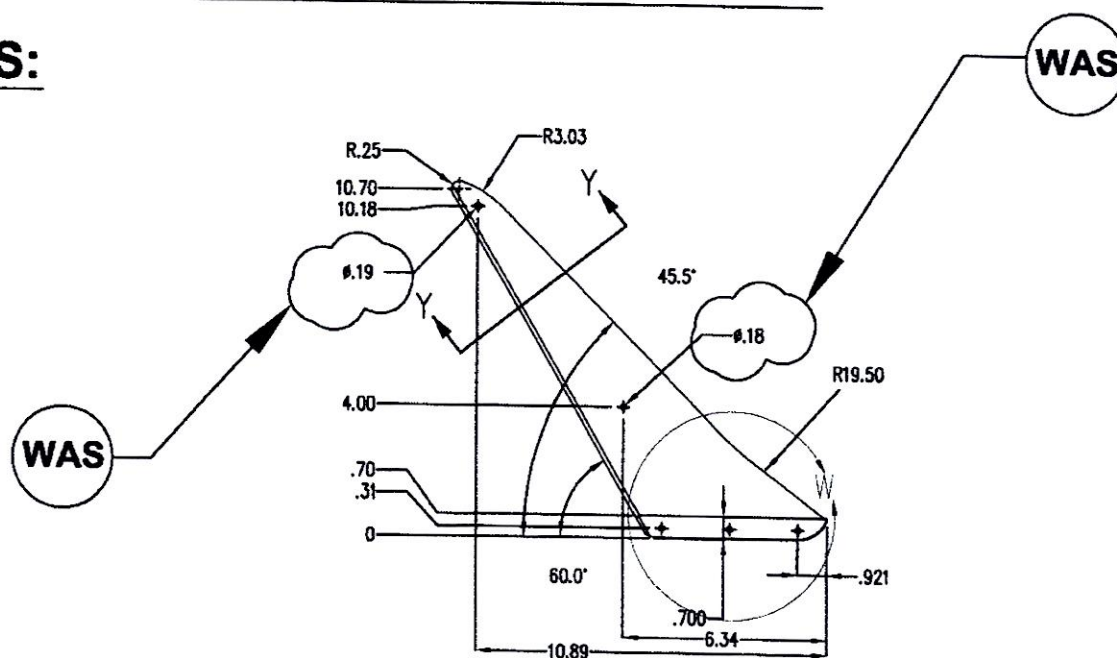
☒ NO



SHEET 1, ZONE A3 WAS:



SHEET 6, ZONE A1 WAS:



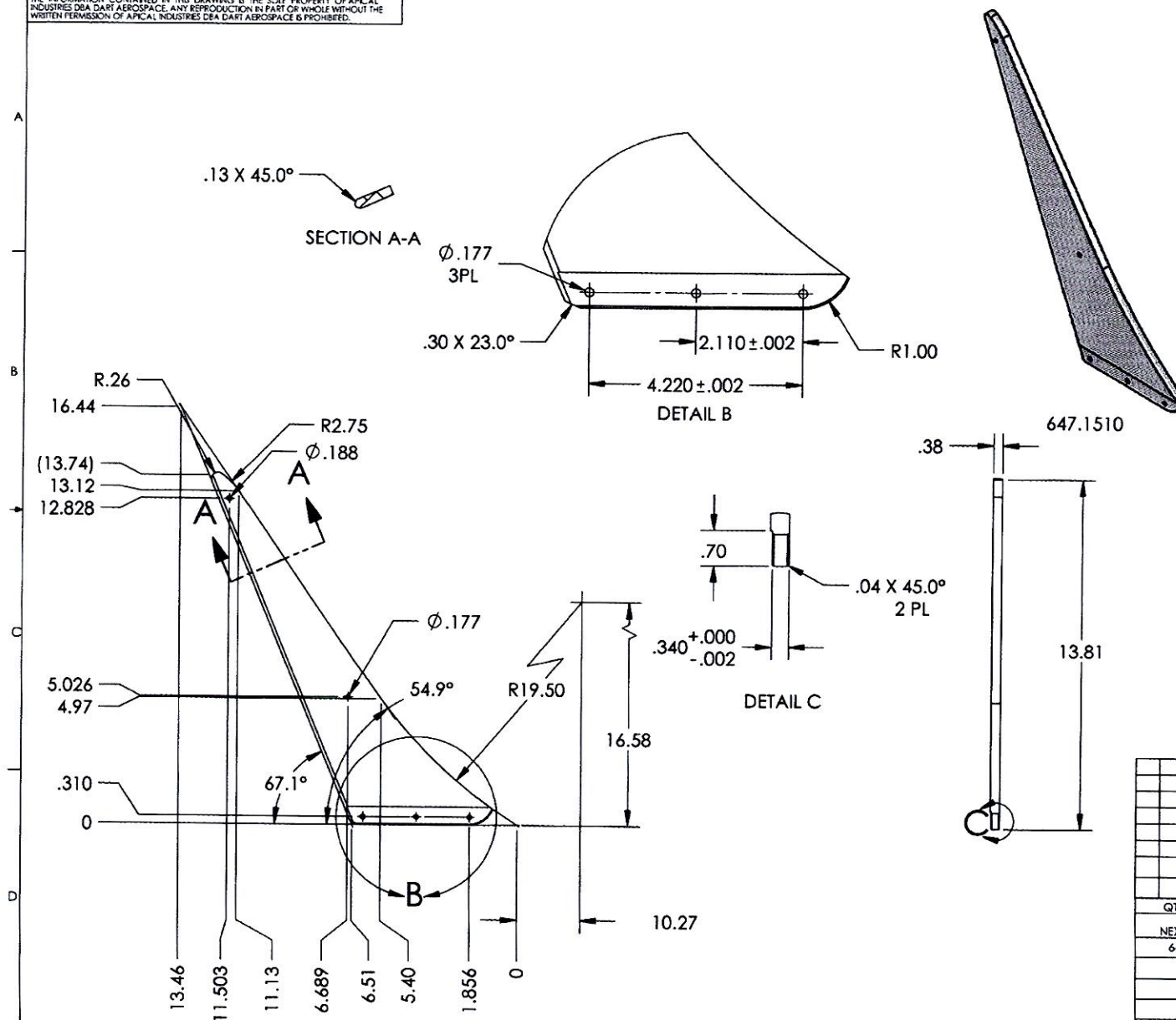
SHEET 6, ZONE A3 WAS:

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
REV.	LAST PROTOTYPE REVISION: PR1		N/C
N/C	INITIAL RELEASE	04/10/09	P. BRAVO
A	INCORPORATED ECH 02960 04676, 04743	11/17/14	P. BRAVO
B	INCORPORATED ECH 05301	02/29/16	P. BRAVO
C	INCORPORATED ECH 05344	03/15/16	P. BRAVO

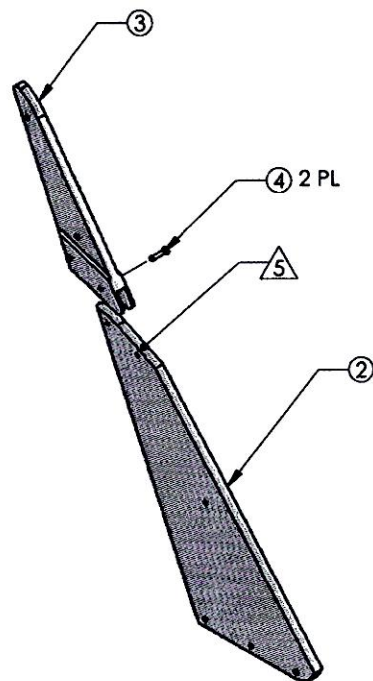
NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH PER MPP-172 SECTION 2.1, 3.3 & 4.3, 1-2 MIL MAX
3. DEBURR AND BREAK ALL SHARP EDGES
4. IDENTIFY IAW MPP-120
- 5 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 & 3 UPON ASSY



QTY	PART #	DESCRIPTION	MATL	SPEC.
6	647.1513	UPPER DEFLECTOR		
A/R	5	601.2045 RTV. LOCTITE 598		
2	4	600.0523 RIVET	N520470AD4-12	
1	3	647.1512 BREAKAWAY TIP		
1	2	647.1511 LOWER DEFLECTOR		
1	1	647.1510 UPPER DEFLECTOR		
X		647.1501 LOWER DEFLECTOR ASSY		
1301	FIND #			
PARTS LIST				
NEXT ASSY (S)		ORIGINAL DATE 04-10-19		
647.1400		DRAWN BY J. CARDNER CHECKED P. BRAVO		
		DRAWING APPROVAL P. BRAVO 04-10-19		
		C-CONTRACT NO.		
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.3°		
		DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA 92081 (760)-724-5300 APICAL INDUSTRIES INC. DBA DART AEROSPACE		
SIZE	CAGE CODE	DWG. NO.	REV.	
B	07M26	647.1500	C	
SCALE		NONE	SHEET 1 OF 6	

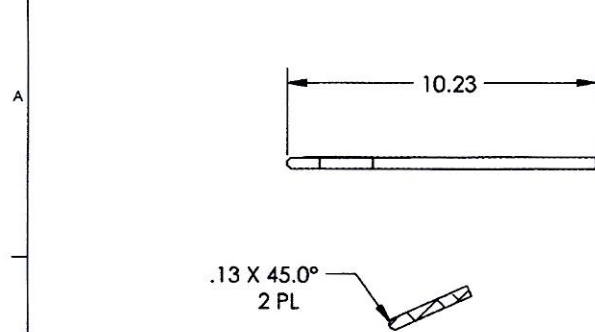
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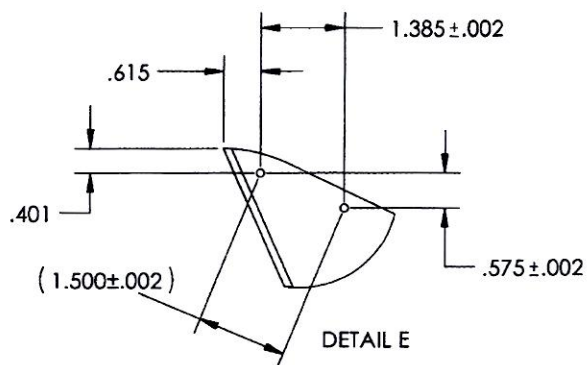
647.1501 SHOWN EXPLODED

ORIGINAL DATE 06-10-19		3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWN BY J. GARDNER	CHECKED P. BRAVO	APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO 06-10-19		DEFLECTORS	
CONTRACT NO.		SHEET B	REV. C
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 7 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		CAGE CODE 07M26	DWG. NO. 647.1500
SCALE NONE		SHEET 2 OF 6	

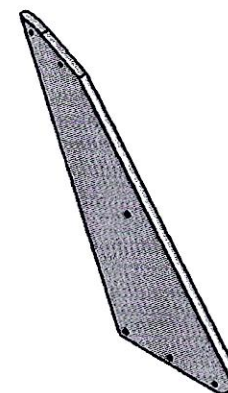
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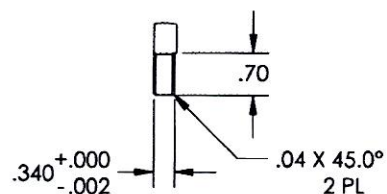
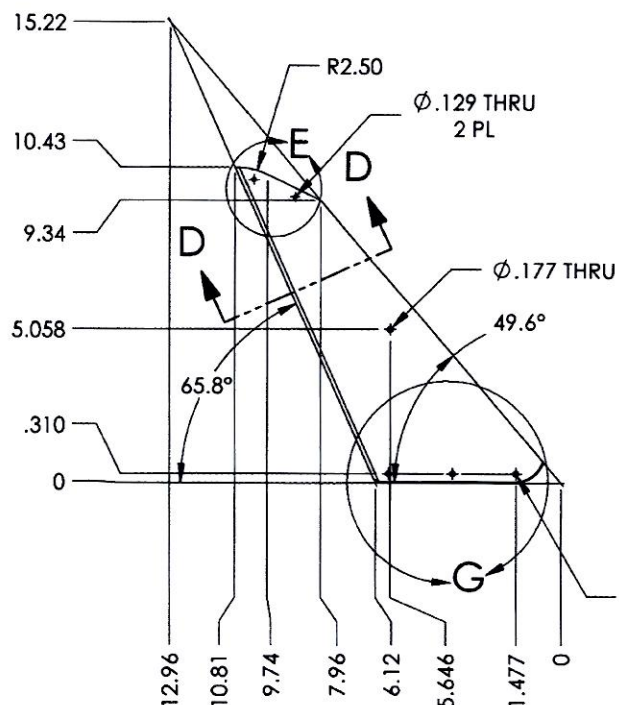
SECTION D-D



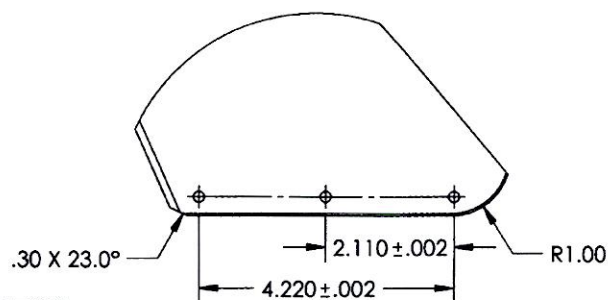
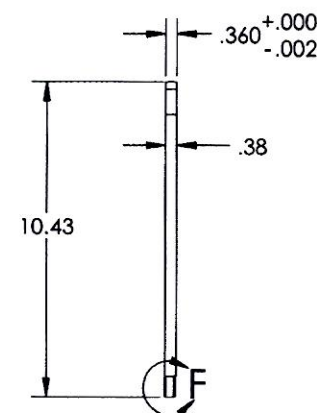
DETAIL E



647.1511



DETAIL F



DETAIL G

ORIGINAL DATE (MM-DD-YY)		06-10-19	
DRAWN BY J. GARDNER		CHECKED BY J. SHAWO	
DRAWING APPROVAL P. BRAVO		DATE 06-10-19	
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°			
SIZE B	CAGE CODE 07M26	DWG. NO. 647.1500	REV. C
SCALE NONE		SHEET 3 OF 6	

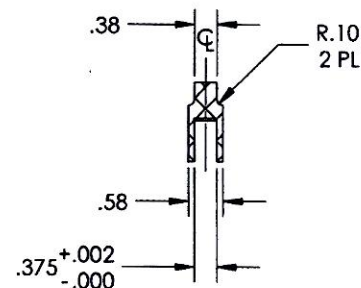
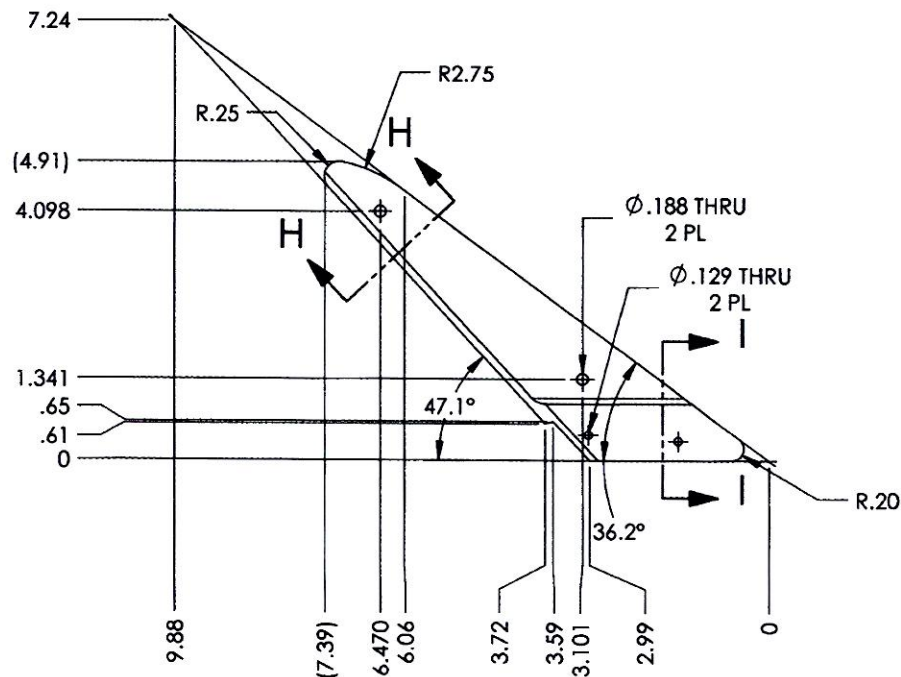
DART 3030 ENTERPRISE CT., SUITE A
AEROSPACE VISTA, CA 92081
APICAL INDUSTRIES INC. (760)-774-5300
DBA DART AEROSPACE

DEFLECTORS

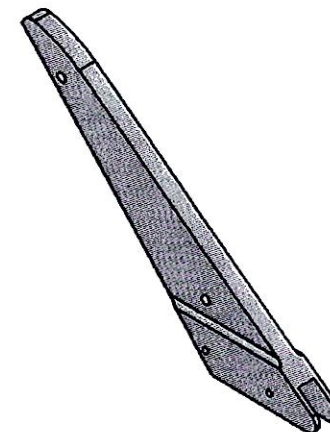
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.13 X 45.0°
2 PL

SECTION H-H



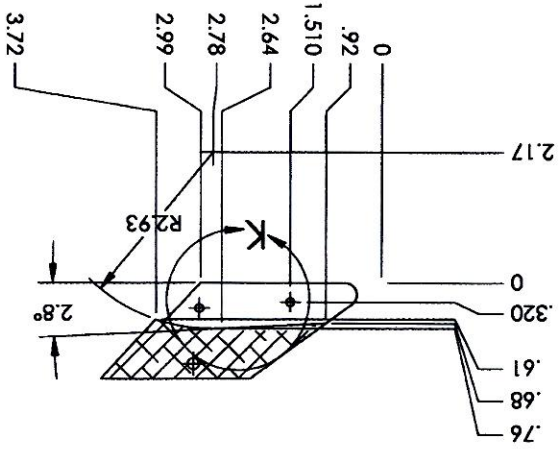
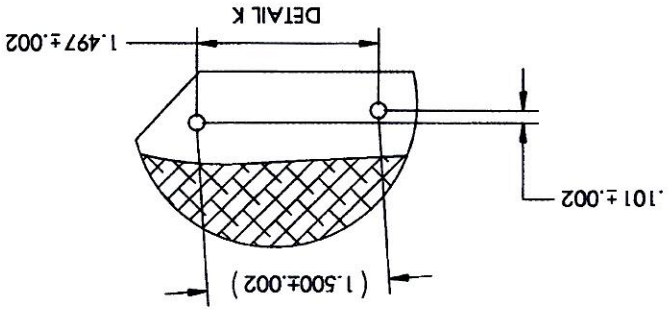
SECTION I-I



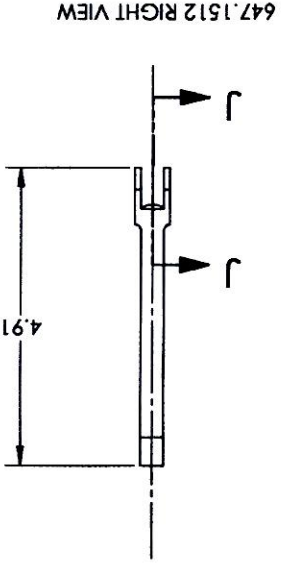
647.1512

ORIGINAL DATE 10/03/19		DART 3030 ENTERPRISE CT. SUITE A VISTA, CA 92081 (760)-724-5300	
DRAWN BY J. GARDNER	CHECKED BY P. BRAVO	APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO 01/10/20		DEFLECTORS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		REV. B 07/26	647.1500 C
CONTRACT NO.		SCALE NONE	SHEET 4 OF 6

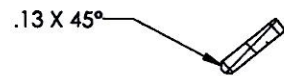
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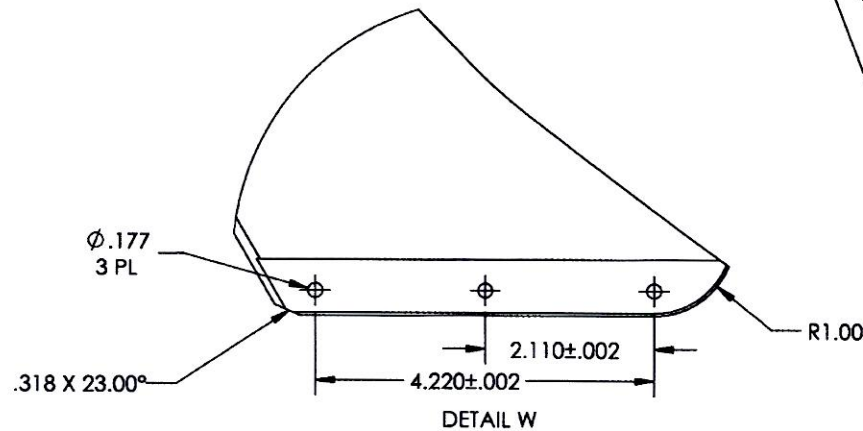
SECTION J-J

[illegible]

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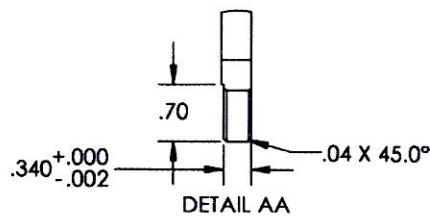
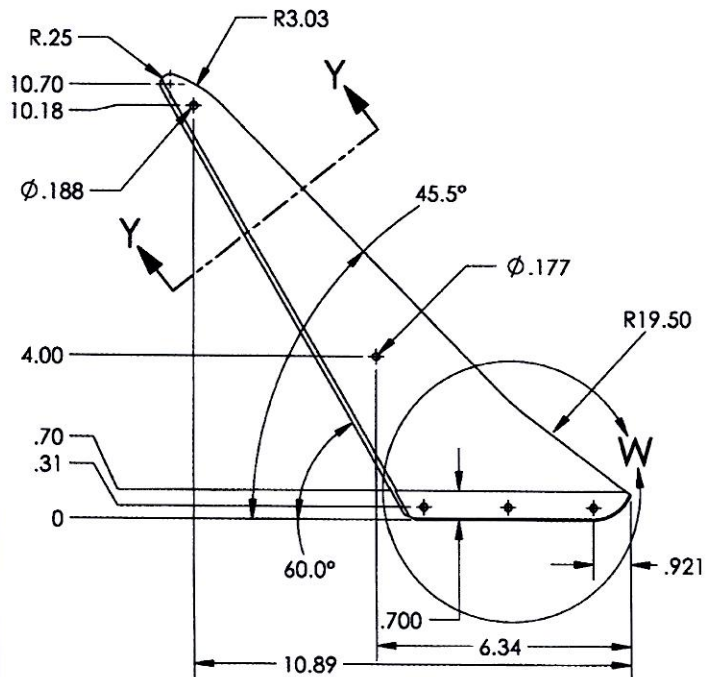


SECTION Y-Y

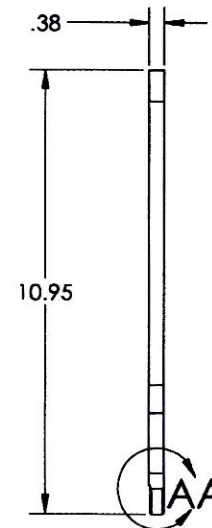


DETAIL W

647.1513



DETAIL AA



ORIGINAL DATE (MM-DD-YY) 06-10-19		DART 3030 ENTERPRISE CT., SUITE A AEROSPACE VISTA, CA 92081 (760)-724-5300 APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWN BY J. GARDNER	CHECKER P. BRAYO		
DRAWING APPROVAL P. BRAYO	DATE 06-10-19		
CONTRACT NO.			
DEFLECTORS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .005 ANGLES ± .5°			
SHEET B	CAGE CODE 07M26	DWG. NO. 647.1500	REV. C
SCALE NONE		SHEET 6 OF 6	